DOCUMENT RESUME

ED 232 135 CS 007 201

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TITLE Literacy: Trends and Explanations.
PUB DATE 11 Apr 83
NOTE 22p.; Award Address presented at the Annual Meeting of the American Educational Research Association (Montreal, Canada, April 11-15, 1983).
PUB TYPE Viewpoints (120) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Educational Trends; Elementary Education; *Etiology; *Literacy; *Reading Achievement; *Reading Difficulties; Reading Instruction; Reading Research; Research Needs

ABSTRACT

Broad literacy trends among elementary, high school, and college students can be determined from various reports from the National Assessment of Education Progress, standardized achievement scores, and the verbal scores on the SAT. When these scores are analyzed for the decade of the 1970s, one finds different trends for different age groups, with the younger children making greater gains over the 10 year period than the older. Several hypotheses for the different trends for the different groups are that reading is taught better in the early grades and less well in the upper elementary and high school years, that knowledge about early reading is greater than knowledge about later reading, and that the gains and losses in reading achievement reflect the changes in reading instruction that began in the late 1960s and have been continuing in the 1970s and the early 1980s. Developmental differences may also account for differences among scores. When there are improvements or declines in literacy over time, it is well to look at what and how students were taught, not only at the time the decline is observed, but over time. Literacy research seems to be ready for a better balancing of the theoretical with the problem oriented, particularly for the poor, minorities, dyslexics, bilinguals, and the many others who are poorly prepared by their early experience. (HOD)

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Literacy: Trends and Explanations

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Award Address
American Educational Research Association

April 11, 1983

CS 007 201

Recent Trends in Literacy

I should like to present some of my thoughts on recent trends in literacy, together with some explanations for these trends.

I should say at the outset that for almost every statement on literacy, one can find another that directly opposes it--from the status of literacy--what it is today, and whether it is getting better or worse--to how and why we got there. Even what was once universally accepted, that it is good to be literate, is being questioned, and by some very sophisticated people. One argument goes that for those who find it difficult to learn to read and write, TV, computers and other interactive media may be viable substitutes. Yet others claim that because of computer technology, a higher level of literacy is needed. This expression of doubt was not as prevalent during the 1970's ——————→ when there seemed to be a greater optimism and a more intensive national effort to improve the literacy of children and adults.

It was the time of the National Right to Read Effort, Reading is Fundamental, The Office of Basic Skills, Sesame Street and The Electric Company, Head Start, Follow Through, Title I, and other national programs to improve literacy. It was the decade also of increased federal funding of research on reading through individual grants, through research and development centers and more recently through the Center for the Study of Reading at the University of Illinois. The decade saw also the beginning of nationwide testing by the National Assessment of Educational Progress. It was the time of the National Academy of Education's Reading Committee and its report, Toward a Literate Society, an analysis of the national

reading problem with recommendations for its solution. (Carroll and Chall, 1975). During the 1970's there was also a significant growth in professional associations concerned with literacy and its research, and in the number of articles and professional journals on reading and writing. (Chall and Stahl, 1982).

Those professionally concerned with research and practice in literacy included reading specialists, classroom teachers, administrators, reading and learning disabilities specialists, and educational publishers. Psychologists and linguists were engaged in much of the basic research. The medical field was also concerned with basic research and practice--particularly with the neurological basis of severe reading and learning disability. Adult educators in the United States and in developing countries worked on problems of adult basic literacy. Some lawyers were concerned with malpractice suits concerning attainment of inadequate literacy by high school graduates of normal intelligence. Other lawyers were concerned with the legal aspects of contracts that were unreadable for those for whom they were intended. More recently, the legal professions have been involved in suits regarding the validity of state minimum competency tests for high school graduation--particularly whether they test what the students were taught. (Madaus, 1982).

There was also much discussion during the past decade as to whether there was indeed a literacy problem. Some surveys found that a small percentage of adults were completely illiterate, and that these were rapidly declining. At the same time, substantial numbers of adults were estimated to be functionally illiterate, i.e. unable to read well enough for adequate functioning at work, for citizenship, and for personal needs. One estimate in the early 1970's was that almost half of the adult population was functionally illiterate (Hunter and Harman, 1979).

A Harris survey commissioned by the Right to Read Office in the early 1970's reported substantial percentages of adults lacking "survival literacy," that is, they had difficulty reading and filling out application forms for employment, a driver's license, medicaid and the like. Other studies (Sticht, 1975) found that when the level of job-related reading materials in the army was compared to the level of reading ability of those who needed to use them (e.g. technical and job manuals), many adults in those jobs were unable to use them effectively.

It would appear, then, that most surveys and interpretations of the past decade, although they disagreed about numbers, did agree that the status of adult literacy was far from adequate--particularly in terms of the growing technical nature of available jobs and the growing complexity of knowledge.

Although the problem of literacy among adults is extremely important, I should like to focus the remainder of this paper on literacy among students--those still in school or recently graduated. I do this for several reasons. First, there are more reliable data on the reading achievements of students. Most are tested regularly with standardized reading achievement tests from elementary through high school. Second, the testing program of the National Assessment of Educational Progress has made it possible to make comparisons nationally over time.

Literacy Trends Among Elementary, High School and College Students

What have been the broad literacy trends? I think we can approach some answers using the various reports from the National Assessment of Educational Programs, the standardized achievement scores reported in newspapers, particularly for the larger cities, and the verbal scores on the SAT.

When these scores are analyzed for the decade of the 1970's, one finds different trends for different age groups, with the younger making greater gains over the 10 year period than the older.

These trends are found on the National Assessment of Educational Progress and similar trends have been reported in newspapers from standardized reading achievement test scores, particularly for large urban centers. The standardized test scores also seem to show gains during the decade in the early grades, particularly among children from low income and minority families. These gains seem to taper off in the middle and upper grades, and they seem to decline during the high school years.

The trends for writing at elementary and high school are not as clear cut as for reading. This comes from various factors, among them the relative novelty of "objective" assessment in writing. Although there is still much difference of opinion on the assessment of reading, there is even more disagreement as to how writing is best evaluated. Yet there appears to be greater agreement than there is for reading that writing is at a very low level of accomplishment at all levels of schooling.

Further evidence for the low state of literacy among high school students comes from the steady decline in SAT verbal scores (Wirtz 1977).* Reading and vocabulary scores of freshmen were found to be significantly lower on a test originally administered 50 years ago in a midwestern university.

Since these comparisons were generally based on tests similar in content, form, and difficulty, the differences found may represent some realities, over time, in the state of literacy during the past decade.

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*The scores stopped declining in 1981 and increased slightly in 1982, although the higher scores are still relatively behind where they were before the present declines.

Before we examine some of the factors behind those trends, it is well to note that these trends are not accepted by all analysts. For example, Roger Farr, former president of the International Reading Association, has a more optimistic view. In his report to the Subcommittee on Education, Arts and Humanities on Basic Skills (Basic Skills, 1979) he noted, "the trend has been for a consistent increase in reading achievement at all grade levels since the time that test data information in the United States was first recorded." p. 424. However, he too, reported that the most pronounced increases have been at the youngest ages.

Some Uses of Literacy Trends

I should like to use the literacy trends of the past decade, particularly those in reading, to help us understand what might be behind them. Hopefully they may give us some explanations, or at least some suggestions, as to what seems to be working, what isn't working, and how it might be turned around. First, I will consider the effects of educational changes and emphases during the past decade. Second, I will consider the effects of individual development.

From the NAEP Tests:

According to the 1980 test results from the National Assessment of Educational Progress, 9 year olds (in Grade 4) were signficantly ahead of 9 year olds tested in 1971 on all tests of reading--on literal comprehension, inferential comprehension, and reference skills (NAEP, 1981). The thirteen year olds (Grade 8) in 1980 did somewhat better than their

age-mates in 1971--but they tested significantly better only on one reading test, literal comprehension. The seventeen year olds (Grade 12) in 1980 tested lower on all the reading tests, but signficantly lower only on inferential comprehension. (Table I).

Why the different trends for the different grade groups? One hypothesis is that we teach reading better in the early grades and less well in the upper elementary and in the high school years. This has some merit and was found in several surveys of schools and teachers. (Austin and Morrison, 1963; Morrison, 1977). There is a general consensus, too, that knowledge about early reading is greater than knowledge about later reading. (Resnick and Weaver, 1979). Indeed this was one of the major reasons for the creation of the Center for the Study of Reading by the National Institute of Education in the middle 1970's. Its main function was to conduct research on reading comprehension at the middle and higher grades, considered to be more difficult to teach and learn than the word recognition and decoding usually taught in the early grades. But these hypotheses, although reasonable, do not seem to explain the trends sufficiently, particularly the increase in 4th grade scores in 1980 as compared to those of 1971.

Let us look at still another hypothesis, one that may help explain

TABLE I

National Assessment of Educational Progress

Gains in Reading Scores, 1971-1980

	Grade 4 (Age 9)	Grade 8 (Age 13)	Grade 12 (Age 17)
Total Reading	+3.9*	+0.8	-0.9
Literal Comprehension	+3.9*	+1.6*	-0.2
Inferential Comprehension	+3.5*	-0.6	-2.1*
Reference Skills	+4.8*	+0.9	+0.8

Grade 4 Scores	Grade 8 Scores	Grade 12 scores
1971 Cohort, in Grade 1, 1967	1971 Cohort, in Grade 1, 1963	1971 Cohort, in Grade 1, 1958
1980 Cohort, in Grade 1, 1976	1980 Cohort, in Grade 1, 1972	1980 Cohort, in Grade 1, 1968

*Significant

From NAEP, 1981

both the recent increases in the earlier grades and the declines in higher.

I should like to propose that the gains and losses in reading achievement on the NAEP tests, and on others, reflects the changes in reading instruction that began in the late 1960's and that have been continuing in the 1970's and the early 1980's--changes largely brought about by the research and development efforts in literacy, and that were directed more to younger children than to the older ones. These included an earlier start, more and earlier phonics, harder basal readers grade for grade, more home instruction, more help to those who needed it, and the like. Thus the significant gains of 4th graders on all reading subtests in 1980 as compared to 1971 on the National Assessment tests may be attributed, at least partly, to the stronger reading instruction in school and to the stronger home reading environment-- as compared to the 1971 of the 1980 cohort / The 4th grade cohort of 1971 was in Grade 1 in 1967, before the stronger reading programs of the 1970's --before Sesame Street and The Electric Company, and before the trend toward early teaching of reading in Kindergarten and in the home. (Chall, 1983). The 4th grade cohort tested in 1980 were 1st graders in 1976, when they had the stronger school and home experiences in reading. The significant gains over the 10 year period, therefore, can, I believe, be explained at least partly by some of these instructional changes.

The Grade 8 gains from the 1971 to the 1980 testing period suggest some influences from the cumulative effects of the stronger early reading programs of the 1970's. The one significant reading gain from 1971 to 1980 was in literal comprehension. Since the 1980 cohort was in Grade 1 in 1972, when some would have participated in a stronger reading program and environment, the improved scores in literal comprehension may reflect this stronger beginning. The 1971 8th grade cohort, on the other hand, was in Grade 1 in 1963, before the changes in early reading instruction were widely practiced.

That no improvement took place for 12th graders from 1970 to 1980 may also be viewed in terms of their early instruction. Both cohorts were in Grade 1 before the 1970's when most readings changes took place. The 1971 cohort was in Grade 1 in 1958; the 1980 was in Grade 1 in 1968. Neither seemed to have a stronger beginning. Thus, it would appear that the changes in beginning reading attitudes and reading characteristic of the national literacy effort of the 1970's "passed" both 12th grade cohorts. It would be questionable, therefore, to attribute the decrease in inferential comprehension of the 1980 12th graders to the stronger skills emphasis of their early reading instruction, since there is little evidence that they received it. If there were changes from 1958 to 1968, they were probably toward a lighter skills emphasis in 1968. And yet, it is increasingly heard from some researchers that the early skills emphasis of the 12th graders is responsible for their low scores on inferential comprehension.

That some early instructional programs may have substantial, constructive, long term effects was suggested also in an exploratory study that we conducted several years ago on the relation between SAT verbal scores and textbook difficulty. At the request of the Advisory Panel on the Scholastic Aptitude Test Score Decline and sponsored by the College Board and Educational Testing Service, we analyzed textbooks used over a 30 year period by six cohorts of students taking the SAT (Chall, Conard, Harris, 1977).

We found compelling evidence that the difficulty of the textbooks used by the six cohorts over a thirty year period was associated with their SAT scores--the harder the textbooks a cohort used from grade 1 to 11, the higher their verbal SAT's; the easier the textbooks, the lower their SAT scores. The level of challenge of the 1st grade reading textbooks seemed to have a particularly strong association with the SAT scores.

> "those cohorts that were in first grade when the reading programs were more challenging did better on the SAT 10 years later. Those who were in first grade when the reading programs had become less challenging, had lower SAT scores 10 years later." p.61

Why are the beginning reading textbooks so important? Why is beginning reading so important? Because it usually requires direct instruction, since most children cannot generate their own rules of print to speech, and letters to sounds. The children are thus more dependent on their teachers and on their textbooks than in later grades. Once the children have mastered the basic recognition and decoding skills and can read simple books on their own, much of their learning can be self generated. In the sixth grade, good readers who have access to a library probably read more words, on a higher readability level, in a month than they read all year in a textbook. Even if their textbooks offer limited challenge, their own free reading can make up for some of the difference. (Chall et al., 1977, p.62; see also Chall, 1983, Stages of Reading Development).

That textbooks and reading methods affect reading achievement has long been accepted. What is not sufficiently recognized, I think, is the cumulative nature of this influence. Most would tend to agree that methods and materials for the higher grades influence abilities in the higher grades. Fewer would acknowledge that the instruction and materials of the early grades also influence higher level reading achievement. (We are continuing to study difficulty level of textbooks for the development of reading and other verbal abilities and for the acquisition of information.)

Developmental Changes in Individuals

The current literacy trends on the NAEP--greater gains in the early than in later grades--have been found in other studies. A deceleration of reading scores after the primary grades has long been noted, particularly for children of low-income families. (Coleman, 1966; Deutsch, 1956).

In a recent study of the influences of families on literacy among low SES children in Grades 2, 4, and 6, we found the same phenomenon for reading, writing and word meaning. (Chall and Snow, 1982). At grade 2, the scores were generally equal to the norms for a middle class population. At grade 4, the

scores of the low income children began to slip somewhat. At grade 6, there was a considerable drop, as compared to the middle class group, particularly in word meanings and in writing.

Why the relatively high scores among these children in the primary grades and the deceleration trends beginning after grade 4? A likely hypothesis, I believe, is a view of the reading process as developmental, changing in characteristic ways from the beginnings and (pre-beginnings) to highly advanced, skilled reading (Chall, 1979 and 1983).

If reading is divided into levels or stages (Chall, 1983), a major break seems to be at about Grade 4. Pre Grade 4 reading can be said to represent the oral tradition, in that the text that is read and can be read rarely goes beyond the language and knowledge that the reader already has through listening, direct experience, TV etc. Reading beyond Grade 4 can be viewed as comprising the literary tradition--when the reading matter goes beyond what is already known. Thus, grade 4 can be seen as the beginning of the long progression in the reading of texts that are ever more complicated, literary, abstract and technical, and that require more world knowledge, and ever more sophisticated language and cognitive abilities in order to engage in the interpretations and critical reactions required. The materials that are typically read at Grade 4 and beyond change in content, in linguistic complexities, and in cognitive demands.

The decelerations in reading achievement often found after grade 4 may be explained at least in part, by the different demands made on the reader. While the earlier grades require proficiency in word recognition and analysis, and in fluency or automaticity inthese, it requires relatively little stretching in tasks of linguistic and cognitive capacities. In the upper elementary grades, high school and college, the challenge becomes primarily linguistic and cognitive. Yet, it should be remembered that without the fluent recognition of words, the so called lower level skills, the higher cognitive skills do not function in reading comprehension.

Thus, we need to be concerned with at least two kinds of reading--for the early grades and for the higher ones. Children in the early grades seem to be succeeding presently. The higher are not.

Unfortunately, few changes have been implemented at the higher levels. Many propose that the higher level skills be taught earlier. Some go even further to claim that it is the lower level skills now taught in the primary grades that are responsible for poor achievement in the higher level skills.

It would seem to me that both of these hypotheses need empirical testing before they become general practice. Indeed, the data that do seem to offer some direction for improvements at the higher levels suggest that we need to have strong skills at the beginning as well as higher order skills at upper elementary, high school and college.

To Sum Up Some Recent Trends in Literacy

When various school populations are compared over a 10 year period--from about 1970 to 1980--the greater gains have been found for those below about grade 4. High school and college students have not faired as well. Indeed, most surveys have shown significant declines when compared to earlier populations of the same age.

Similar trends of deceleration with age or grade have been reported for children of low income families--relatively good achievement in the early grades, with increasing losses from about grade 4 on.

Why? I have tried to show that explanations for both trends may lie in a consideration of history--the environmental history of how children were taught in school and at home, and how this environmental history fits with the course of development of reading in the individual.

When there are improvements or declines in literacy over time, it is well to look at what and how students were taught, not only at the time the decline is observed, but how they learned to read initially and over the long

haul. It would seem important to keep records of the literacy environment, from the early grades through high school and college. Thus the periodic testing of samples of children as now done by the National Assessment needs to be supplemented by periodic indices of reading and writing instruction--indices that have been found over the years to be reliably associated with literacy achievement. For reading, such factors as reading methods, book exposure in school and at home, the level of challenge of textbooks used in the different grades and content areas, the number and level of books read to and by the pupil, time on task, have proven useful. We do this for research (e.g. IEA Study), but not for describing on-going conditions. We would be doing no less than the economists who rely on all kinds of indices of production, investments and the like for their analyses.

Making inferences as to whether we are teaching correctly from achievement results alone, without relating them to what was indeed taught, is risky. Finding agreement on the minimal indices to record may not be easy either. Yet if we believe that literacy is learned, that children and adults can be educated, and that literacy is not mainly a natural phenomenon, then we should find some ways to reach a consensus or at least a compromise.

The development of literacy in individuals also needs to be examined carefully to help explain the highs and lows in the long progression from elementary school through college. It would seem therefore, that tests used to measure the national status of literacy might focus not only on the ultimate, expert tasks of mature reading, such as literal and inferential comprehension and reference skills, but on the more elemental knowledge and abilities of the novice--the beginning reading skills that are important in the development of higher skills--such as word recognition and decoding. The evidence indicates that they are necessary, although not sufficient, for more advanced reading. But the evidence is also strong that a lack of such skills is often behind the failure to progress by many children.

Development of reading through the various levels or stages, in relation to given learning conditions, may give us a better insight into solutions that might work over time--for the individual, for definable groups, and for schools and school systems. It seems wasteful to cry for a different instructional program whenever scores drop, when we have so little evidence as to what brought it about and whether the different program will improve matters. It can make matters worse.

Thus the proposal of many that the emphasis on basic skills in the early grades during the 1970's produced the decline in 12th grade in the 1980's cohorts as compared to the 1970 cohort is puzzling, for neither cohort had the heavier skills emphasis. Indeed the NAEP data tend to show that those who did get the stronger skills emphasis did better. In Grade 4, in fact, they did significantly better, not only in literal comprehension, but in inferential comprehension and in reference skills.

I am mindful that my suggestions to look toward history--of instruction and of the individual's development--will meet with no easy consensus. They touch on long held strong, differing views on reading that have tended to overwhelm us--in theory, research, and in practice. And yet the gathering of systematic data on literacy practices (and expectations) and on the growth of literacy in individuals over time may help us speak to each other a bit more productively as researchers, and as researchers with teachers, with parents, and others who depend upon our expert knowledge.

How Much Literacy--Recent Trends

There is much difference of opinion as to what constitutes literacy. The confusion may well stem from the fact that the nature of literacy has changed and continues to change over time. Historically, the definition of literacy has changed from an ability to write one's name, to an ability to use

reading for every day functioning, (4th grade reading level, World War II) to an 8th grade, and to that needed for a high school equivalency diploma (Chall, 1983).

The NAE Reading Committee report, Toward a Literate Society, suggested a 12th grade reading level as essential literacy for today, an ability to read the New York Times, a newsmagazine such as Time, critically and analytically (Carroll and Chall, 1975). The state minimum competency tests for high school graducation, at Grade 11, seem to define minimum literacy lower--closer to grade 8 reading level.

An analysis of eight tests of minimum competency in reading for Grade 11 published in the late 1970's (Chall, Freeman and Levy, 1982), half developed by state departments of education and half by publishing firms revealed a wide range of reading ability needed to "pass"--from a 5-6 grade level to an 11-12th, with most of the texts requiring about a 7-8 grade level.

Analyses of the maturity of the reading selections (by Chall's reading stages) and the level of cognitive processing required to answer the questions (from Bloom's Taxonomy) confirmed that the level of literacy required by these minimum competency tests was characteristic more of the upper elementary grades than of high school.

While these lower competency levels may seem generous to those students who lag behind--we cannot overlook that most important jobs today require higher abilities. (The largest percentages of unemployed youth seem to be among those with lowest levels of literacy.)

Reading Disability, Dyslexia, and Learning Disabilities

There is still another problem area that is of importance to a consideration of the status of literacy. Various government committees basing their estimates on a long history of research, have reported that about

10-15 percent of children and adults have severe difficulty in learning to read. (Carroll and Chall, 1975). The Federal Handicapped Law, however, recognized only about 2 percent having learning disabilities needing special diagnosis and treatment.

This is unfortunate, for persons with severe reading difficulty represent a substantial proportions of the population, and because of greater understanding and adjustment made in curricula for those with learning disability, there are growing numbers of such students in high schools and colleges.

Can those with severe reading difficulty learn to read? There is considerable research indicating that they can. Although popular opinion, including that of many educators, is that if those with reading problems have not learned by high school, they will never learn, the research indicates significant gains from remedial instruction. Comparisons with control groups indicate that there are immediate and long term gains when remedial treatment is given, Smith (1979). Remedial programs in community and four year colleges are also effective (Cross, 1981).

Status of Research

I should like to conclude with a few words on the status of research on literacy. There has been a tremendous growth in the amount of research over the past two decades. The research has also become more theoretical and "basic". In comparison, less seems to be directed toward solving the practical problems of literacy.

There is a growing tendency to cut up the field so that each part seems to invent anew what the other already knows. For reading, there seems to be several groups doing the major research and development:

educational researchers and reading specialists do the major research on reading instruction;

clinical psychologists and reading specialists are concerned with reading disability;

special educators and various medical specialists, particularly neurologists, are concerned with reading/language/learning disabilities;

adult educators are primarily concerned with adult literacy;

cognitive psychologists and linguists are mainly concerned with basic research and theory.

A likely scenario follows on how students with reading problems might be viewed by each in turn: In Grade 1, students with reading difficulty might be classified as low in readiness (and as low achievers in the higher grades) by researchers on reading instruction. If the students have severe difficulty and are sent for a full evaluation, they will probably be classified as learning disabled by the reading/learning disability (medical) specialist. If they drop out of high school with reading ability below minimum competency, and enter an adult literacy program, they would probably be classified as being functionally illiterate. Most basic researchers would offer few explanations or classifications, only perhaps that instruction did not follow one or another of the theoretical models of the reading process.

The fastest growing research area is perhaps writing. As with the several groups in reading research, writing researchers seem to have produced many kinds of research, and a kind of separation from reading. As with reading subgroups, some of the researchers on writing seem to be discovering again what has been accepted knowledge in reading, still the most researched of the school subjects. On the whole, the status of research in writing seems better than it was a decade age.

Overall, the research on literacy seems to be ready for a better balancing of the theoretical with the problem oriented, particularly for those children, young people, and adults who are having great difficulty with literacy--the poor, minorities, dyslexics, bilinguals, and the many high school and college students who are poorly prepared by

their earlier experience. A greater recognition and use of the accumulated knowledge and wisdom of teachers would also help. So would a better appreciation of the cumulative effects of what is done in the school, the home and the community.

REFERENCES

Austin, M.C. and Morrison, C. The torch lights; tomorrow's teachers of reading, Cambridge, Mass: Harvard University Press, 1961.

Basic Skills; 1979: Hearings before the Subcommittee on Education, Arts, and Humanities of the Committee on Labor and Human Resources, United States Senate, Washington, D.C.: U.S. Government Printing Office, 1979.

Carroll, J.B. and Chall, J.S. Toward a literate society, New York: McGraw-Hill, 1975.

Chall, J.S. The great debate: Ten years later, with a modest proposal for reading stages, in Resnick and Weaver (eds.), Theory & Practice of Early Reading, Hillsdale, N.J.: Erlbaum Associates, 1979.

Chall, J.S. Stages in reading development, New York: McGraw-Hill, 1983.

Chall, J.S. Learning to read: The great debate, second edition, with a new introduction, New York: McGraw-Hill, in press.

Chall, J.S., Conard, S.S and Harris, S.H. An analysis of textbooks in relation to declining S.A.T. scores, New York: College Entrance Examination Board, 1977.

Chall, J.S., Freeman, A., and Levy, B. Minimum competency testing of reading: An analysis of eight tests designed for grade 11, in Madaus (ed.), The Courts, Validity, and Minimum Competency Testing, Boston: Kluwer-Nijhoff Publishing, 1982.

Chall, J.S. and Snow, C. Families and literacy: the contribution of out-of school experiences to children's acquisition of literacy, A Final Report to the National Institute of Education, December 22, 1982.

Chall, J.S. and Stahl, S.A. Reading, in H. Mitzel (ed.) Encyclopedia of Educational Research, 5th edition, Washington, D.C.: American Educational Research Association, in press.

Chomsky, C. "Stages in Language Development and Reading Exposure," Harvard Educational Review, 42, 1, February, 1972.

Coleman, J.S., et al. Equality of educational opportunity, Washington, D.C.: U.S. Government Printing Office, 1966.

Cross, P. Adults as learners, San Francisco: Jossey-Bass, 1981.

Deutsch, M. The role of social class in language development and cognition, American Journal of Orthopsychiatry, 1965, 35, 78-88.

Hunter, C.St.J. and Harman, D. Adult illiteracy in the United States. New York: McGraw-Hill, 1979.

Madaus, G.F. Minimum competency testing for certification: The evolution and evaluation of test validity, in Madaus (ed.), The Courts, Validity, and Minimum Competency Testing, Boston: Kluwer-Nijhoff Publishing, 1982.

Morrison, C. and Austin, M.C. The torch lighters revisited - a preliminary report, The Reading Teacher, 1976, 29, 647-652.

National Assessment of Educational Progress, Reading, Thinking, Writing: A report on the 1979-80 assessment. Denver: NAEP, 1981.

Resnick, L.B. and Weaver, P.A. Theory and Practice of Early Reading, Volumes I. II. III. Hillsdale, New Jersey: Lawrence Erlbaum Associates, Inc., 1979.

Smith, L. An Evaluation of Studies of Long term Effects of Remedial Reading Programs. Unpublished Thesis, Harvard Graduate School of Education, 1979.

Sticht, T.G. (ed.) Reading for working, Alexandria, Va.: Human Resources Research Organization, 1975.

Wirtz, W. On further examination: Report of the advisory panel on the Scholastic Aptitude Test score decline, Princeton: College Board Publications, 1977.